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ABSTRACT

This volume discussed the research methodology used in the National Longitudinal Surveys of Labor Market Ecperience (NLS). The survey studied employment market conditions for four groups in the labor force: men, aged 45-59; women, aged 30-44; young men, aged 14-24; and young women, aged 14-24. Data were collected on 20,000 individuals over a five year period. This information included work experience, unemployment, commuting costs, socioeconomic variables, marital and family status, job attitudes and aspirations, environmental variables, and financial considerations. Data collection was performed by use of interview and questionnaire. Information on access to NLS data tapes and descriptions of their terminology and filing systems were included. (SM)

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THE NATIONAL LONGITUDINAL SURVEYS

HANDBOOK

Center for Human Resource Research
The Ohio State University
December 1973

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I/II

PREFACE

This volume is designed as a comprehensive guide to the National Longitudinal Surveys of Labor Market Experience (NLS), and is intended for two major categories of readers. Persons who wish to ascertain whether their research interests can be served by the NLS data will find useful the detailed description of the objectives of the surveys, the samples covered, and the types of information collected. The availability and cost of the several NLS data files will also be of interest in this context. For researchers who acquire the data files, the volume performs the additional functions of describing the layout of the computer tapes, explaining the documentation, and presenting a number of caveats relating to the use of the data.

The creation of this handbook has been one element in a comprehensive revision of the NLS data tapes originally produced by the U.S. Bureau of the Census. The guidelines for the revision were established in the light of extended experience with the original versions by the staff of the Center for Human Resource Research and by researchers elsewhere who had acquired and were using copies of the tapes. Suggestions were solicited from all known users, and an NLS Users' Conference was held at The Ohio State University in June, 1973, to discuss the ways in which the data tapes might be made more readily usable for the variety of purposes they were serving. Thus, there has been a substantial contribution to the effort by a large number of members of the research community, to all of whom we wish to express our gratitude.

The format of the revised data files and documentation reflect the ingenuity and dedicated effort of an able team of computer specialists under the leadership of John T. Grasso, Manager of the Data Processing Unit of the Center for Human Resource Research. The several facets of the project were accomplished under the supervision of Karen Blackwell, Marta Fisch, C. Karl Kuehne, III, Daniel M. Hummer, and Robert G. Shondel. Hummer originally suggested the format for this Handbook, and he has been largely responsible for the content of Sections V and VI.

In the course of the work innumerable questions arose relating to individual variables on the Census tapes, which required very close liaison with personnel in the Demographic Surveys Division. We are particularly grateful in this respect for the cooperation of Robert Mangold and of the following members of the Census staff: Betty Dobronski, Ken Kaplan, Carrol Kindel, Dorothy Koger, and Gregory Russell.

Finally, it perhaps goes without saying that ultimate credit for the NLS data files must be accorded to officials of the Manpower Administration of the Department of Labor who initially recognized the value of such a study and have provided continuous financial and

professional support; to the some 20,000 individuals throughout the United States who consented to be the subjects of the study; to the large number of individuals in the Bureau of the Census who have participated over the years in designing the sample and in collecting, editing, and processing the data; and to present and past members of the staff of the project in the Center for Human Resource Research at The Ohio State University who have been responsible for the design of the study and the construction of the variables.

Herbert S. Parnes
Project Director

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I STRUCTURE AND DEVELOPMENT OF THE NLS RESEARCH PROJECT

The National Longitudinal Surveys were born early in 1965 when the Office of Manpower Policy, Evaluation, and Research of the United States Department of Labor contracted with the Center for Human Resource Research of The Ohio State University for longitudinal studies of the labor market experience of four groups in the United States population: men 45 to 59 years of age, women 30 to 44 years of age, and young men and women 14 to 24. (For convenience, these groups will hereafter be referred to as "men," "women," "boys," and "girls," respectively.)

Since budget constraints precluded a sample of the total population, these four groups were selected because each faces more or less unique labor market problems of special concern to policy makers. For the two cohorts of youth, these problems revolve around the process of occupational choice, and include both the preparation for work and the frequently difficult period of accommodation to the labor market when formal schooling has been completed. The special problems of the middle-aged men stem in part from skill obsolescence, from the increasing incidence of health problems, and from employment discrimination, all of which are reflected in declining labor force participation rates and in longer-than-average duration of unemployment, if it occurs. For the women, the special labor market problems are those associated with re-entry into the labor force by married women who feel that their children no longer require their continuous presence at home.

A. The Surveys

The initial plan called for annual interviews over a five-year period with representative samples of individuals--six interviews with each cohort. As a result of cost considerations it was decided after the second survey of the men to survey the two older groups biennially rather than annually.[1] The younger groups, because of their greater mobility, were to continue to be interviewed annually. Interviews were conducted with the middle-aged men in 1966, 1967, 1969, and 1971, with an abbreviated mailed questionnaire[2] being distributed in 1968. Women

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[1] The older cohort of women were to be interviewed in both 1971 and 1972 in order to permit a survey at the end of the five-year period.

[2] The term "questionnaire" will frequently be used generically in subsequent portions of this Handbook to refer to an interview schedule.

30 to 44 years of age were interviewed in 1967, 1969, 1971, and 1972, a brief mailed questionnaire being used in 1968. The young men and women were interviewed annually, the males beginning in 1966 and ending in 1971 and the females from 1968 through 1973.

In the case of both the boys and girls, interviewing began at approximately the same time each year--in October for the boys and in January for the girls. Because of scheduling problems in the Census Bureau, the month in which the interviews were conducted with the men and women was changed after 1968. Until the 1968 mail survey, surveys of both groups began in May of each year; after 1968, the interviews with the men began in July while those with the women began in April. The interviewing process for each cohort extended over a period of two to three months. The longest period occurred in the 1968 survey of girls, which began in the week of January 22, 1968 and ended on May 1, 1968; among the shortest interviewing periods was that of the 1972 survey of women, when interviewing began on April 24 and ended on June 23.

Each of the four cohorts was represented by a national probability sample of approximately 5,000 individuals. The samples were drawn by the Bureau of the Census from the primary sampling units (PSU's) that had been selected for the experimental Monthly Labor Survey conducted between early 1964 and late 1966.[1] In order to provide statistically reliable estimates for blacks and to permit a more confident analysis of differences in labor market experiences between blacks and whites, a sampling ratio for blacks three to four times as large as that for whites was used.

Although the problem of attrition was a fearful spectre at the outset of the study, shrinkage of the samples has been remarkably small. For example, in the last scheduled survey of the men (1971), 83 percent of the original respondents were interviewed, half of the remainder having died and the other half having disappeared from the sample as the result of their refusal to be interviewed or of the inability of Census enumerators to locate them. The corresponding completion rates for the other cohorts were 88 percent for the women, 77 percent for the boys, and 86 percent for the girls.

In light of this very favorable record and of the widespread interest that had been generated in the data bases, representatives of the Manpower Administration in 1971 suggested the possibility of continuing the

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[1] For a detailed description of the sampling design, see Section II.

surveys beyond the period originally contemplated. After extended consideration, including the bringing together of an interdisciplinary advisory panel, it was decided to continue the surveys, but to conduct the interviews by telephone and to keep the interview schedules as short as possible by including only those types of information which could not be reliably collected retrospectively. There were to be two biennial surveys of this type for each cohort and, if the experience proved favorable, a final face-to-face interview at the end of the second five years of the program. It was recognized that attrition might make it necessary, or at least desirable, to abandon the plan at any time. As of the end of 1973, only one of the telephone surveys had been completed--for the men. Of the potentially eligible members of the sample 93 percent were successfully interviewed, slightly more than three-fourths of the original sample.

B. Functions of Census Bureau and Center for Human Resource Research

From their inception, the National Longitudinal Surveys have involved close collaboration between the Center for Human Resource Research and the United States Bureau of the Census, both operating under separate contracts with the Manpower Administration. The Census Bureau was responsible for designing and drawing the samples, for conducting all of the field work, and for processing the data. The Center for Human Resource Research was charged with designing the studies and the content of the interview schedules, developing coding specifications, analyzing the data, and writing the reports.

This brief description of the division of responsibility, however, obscures the close interaction and cooperation between the two organizations at every stage of the research. Indeed, in some cases jurisdictional lines were blurred. For example, staff members of the Center for Human Resource Research were generally present at training sessions in which Census enumerators were being instructed in the content of the interview schedules. In pretests, and on a number of occasions in actual surveys, Center personnel were sworn in as special agents of the Census Bureau and accompanied interviewers in order to have a first hand view of how the interviews were going. On the other hand, while interview content was principally the responsibility of the Center, the Census exercised a substantial influence over schedule content. For the most part this was through valuable advice based on their long experience with survey instruments, but in a few instances it occurred by the exercise of a veto. For example, in the initial stages of the project, the Bureau steadfastly refused to administer standard psychological scales, although this policy was relaxed to the extent of permitting the inclusion of an abbreviated version of Rotter's Internal-External Control scale in the 1969 interview schedules. As another example, the Bureau was unwilling to use a method of collecting 12-month work histories which

would have coded an individual's status in each of the months between two interview dates. However, beginning with the 1970 surveys, the Bureau developed an elaborate and rather complex substitute scheme which was intended to produce the same kind of detail.

Needless to say, the division of function between staffs of the Census Bureau and the Center for Human Resource Research has necessitated continuous and very close liaison. Hardly a day has gone by without at least one telephone conversation between Center and Census personnel. In addition, voluminous memoranda flow between the two agencies, and there have been a large number of face-to-face planning meetings.

The modus operandi between the two agencies has evolved over the years, but changed rather substantially in 1971 and again in 1973. Until 1971, all tables produced for each survey report were a product of the Census Bureau on the basis of specifications provided by the Center. Since the Census restricted its data processing to the preparation of cross-tabulations, the Center's reports were confined to tabular analysis. Beginning in 1971, the Center assumed a larger role in data processing. Both parties agreed that for surveys not yet processed by Census, data tapes would be made available to the Center after the preparation of a limited number of test tables suggested that the tape was reasonably "clean." Among other things, this change has meant that many of the recoded variables on the tapes are now developed by the Center data processing staff rather than by the Census.

The second major change in the division of responsibility between the Census and the Center for Human Resource Research occurred in 1973 with the decision that the Center would assume responsibility for producing a standardized tape for public use. Up to that time, the Census Bureau prepared public-use tapes similar to those which it furnished the Center, except that they included only a portion of the recoded variables appearing in the Center's tapes. The NLS tapes made available by the Census both to the Center and to other researchers had a number of characteristics which made them not readily usable, particularly for multivariate analysis. Since the Center had to rewrite these tapes in any case, it appeared uneconomic to perpetuate a situation in which all users of the public tapes had to perform essentially the same tasks in order to make the tapes usable for their own purposes. It was therefore agreed that the Center would both revise previously issued tapes and, in addition, assume the function of producing, documenting, and distributing all subsequent ones.

II SAMPLING, INTERVIEWING AND ESTIMATING PROCEDURES

Each of the four NLS samples was designed to represent the civilian noninstitutional population of the United States at approximately the time of the initial survey. Because there were no additions to the samples over the years of the surveys, they cannot be construed to be precisely representative of the civilian population in any year after the first. The departure is most significant in the case of the young men, since those who were in the military service as of 1966 but who subsequently returned to civilian life are not represented.[1]

A. Sampling Procedure

Each of the four age-sex cohorts is represented by a multi-stage probability sample located in 235 sample areas comprising 485 counties and independent cities representing every state and the District of Columbia. The 235 sample areas were selected by grouping all of the nation's counties and independent cities into about 1,900 primary sampling units (PSU's) and further forming 235 strata of one or more PSU's that are relatively homogeneous according to socioeconomic characteristics. Within each of the strata a single PSU was selected to represent the stratum. Within each PSU a probability sample of housing units was selected to represent the civilian noninstitutional population.

Since one of the survey requirements was to provide separate reliable statistics for blacks, households in predominantly black enumeration districts (ED's) were selected at a rate approximately three times that for households in predominantly white ED's. The sample was designed to provide approximately 5,000 interviews for each of the four surveys--about 1,500 blacks and 3,500 whites. When this requirement was examined in light of the expected number of persons in each age-sex-color group it was found that about 42,000 households would be required in order to find the requisite number of blacks in each age-sex group.

An initial sample of about 42,000 housing units was selected and a screening interview took place in March and April, 1966. Of this number about 7,500 units were found to be vacant, occupied by persons

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[1] Conversely, young men who entered the service subsequent to 1966 are unrepresented during their military service, since no attempt was made to survey members of the sample during such periods.

whose usual residence was elsewhere, changed from residential use, or demolished. On the other hand, about 900 additional units were found which had been created within existing living space or had been changed from what was previously nonresidential space. Thus 35,360 housing units were available for interview, of which usable information was collected for 34,662 households, a completion rate of 98.0 percent.

Men 45-59 Following the initial interview and screening operation, 5,518 males age 45-59 were designated to be interviewed. These were sampled differentially within four strata: whites in white ED's (i.e., ED's which contained predominantly white households), blacks in white ED's, whites in black ED's, and blacks in black ED's.

Young men 14-24 The original plan called for using the initial screening to select all four samples. On reflection it was decided to rescreen the sample in the fall of 1966 prior to the first interview of young men, since a seven-month delay between screening and interview seemed inordinate in view of the mobility of young men in their late teens and early twenties.

To increase efficiency, it was decided to stratify the sample for the rescreening by the presence or absence of a 14-to-24-year-old male in the household. The probability is great that a household which contained a 14-to-24-year-old in March will also have one in September. However, to insure that the sample also represented persons who had moved into sample households in the intervening period, a sample of addresses which had no 14-to-24-year-old males was also included in the screening operation.

This phase of the screening began in early September, 1966. Since a telephone number had been recorded for most households at the time of the initial interview, every attempt was made to complete the short screening interview by telephone. Following the screening operation, the same differential sampling process that had been used in the case of the older male cohort produced 5,713 males age 14-24 who were designated to be interviewed.

Women 30-44 and 14-24 The rescreened sample of households from which the sample of young men was drawn was used also to obtain the sample of women 30 to 44 years of age. Using the same type of differential sampling ratios described above, 5,393 women were selected for interview. Finally, from the same group of households, a sample of 5,533 young women age 14 to 24 as of January 1, 1968 was designated.

Multiple-respondent households The total number of households represented in the four NLS samples of individuals is 13,582. Thus, a number of households have yielded more than one respondent, frequently across cohorts. By cross-indexing households and respondents, the

Census Bureau has provided a means of identifying respondents having common households when the samples were originally drawn. The revised data tapes made available by the Center will show for each respondent (1) an identification number within the particular cohort, (2) an identification number for the household from which the respondent was originally selected, and (3) the identification numbers of any other respondents (in the same or other cohorts) who were selected from the same household.

B. Field Work

Roughly three to four hundred interviewers were assigned to each of the NLS surveys. Since many of the procedures and the labor force concepts used in the NLS were similar to those employed in the Current Population Survey (CPS), the Census Bureau used interviewers with CPS experience in all of the surveys.

In each of the early surveys, a two-stage training program was used to provide specific instruction to the interviewers. First, two supervisors from each of the Bureau's 12 regional offices were trained in Washington; they in turn trained the interviewers and office clerks assigned to the survey in their regions. Each trainee was provided with a "verbatim" training guide prepared by the Bureau staff and reviewed by the Manpower Administration and the Center for Human Resource Research of The Ohio State University. The guide included not only lecture material, but a number of structured practice interviews to familiarize the interviewers with the questionnaire. In addition to the classroom training, each interviewer was required to complete at least one live interview prior to beginning an assignment.

As interviewers developed experience with the NLS, training for each additional survey became less intensive. While the small number of interviewers with no previous NLS experience continued to receive classroom instruction, training for the experienced interviewers generally consisted of a home study package. This included the Interviewer's Reference manual explaining the purpose, procedures and concepts used in the survey, as well as a set of questions emphasizing points covered in the manual.

In addition to training, a field edit was instituted to insure adequate quality. In the earliest surveys, this consisted of a "full edit" of the first several schedules returned by each interviewer and a partial edit of the remaining questionnaires from each interviewer's assignment. The full edit consisted of reviewing the questionnaires from beginning to end, to determine if the entries were complete and consistent and whether the "skip" instructions were being followed. The interviewer was contacted by phone concerning minor problems and,

depending on the nature of the problem, was either merely told of the error or asked to contact the respondent for additional information or for clarification. For more serious problems the interviewer was retrained either totally or in part, and the questionnaire was returned for completion.

If problems arose, the complete edit was continued until the supervisor was satisfied that the interviewer was doing a complete and consistent job. The partial edit simply checked to determine that the interviewer had not inadvertently skipped any part of the questionnaire which should have been filled. Any questionnaire which failed the partial edit was returned to the interviewer for completion. After the first two surveys of the middle-aged men and the initial survey of each of the other cohorts, a "full edit" was used on all the schedules.

C. Estimating Methods

The estimating procedure used in the NIS involved multistage ratio estimates.

Basic weight The first step was the assignment to each sample case of a basic weight consisting of the reciprocal of the final probability of selection. The probability reflects the differential sampling which was employed by color within stratum for the four panels.

Noninterview adjustment In the initial survey of each cohort, the weights for all those interviewed were adjusted to the extent needed to account for persons for whom no information was obtained because of absence, refusal, or unavailability for other reasons. This adjustment was made separately for each of eight groupings for the middle-aged men,[1] 16 groupings for the women 30 to 44,[2] and 24 groupings for the two cohorts of youth.[3]

Ratio estimates The distribution of the population selected for the sample may differ somewhat, by chance, from that of the nation as a whole with respect to residence, age, color, and sex. Since these

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[1]Census region of residence (Northeast, North Central, South, West) by place of residence (urban, rural).

[2]Same as for middle-aged men, by color (white, black).

[3]Same as for women 30-44, except that place of residence has three categories (urban, rural farm, rural nonfarm).

population characteristics are closely correlated with the principal measurements made from the sample, the measurements can be substantially improved when weighted appropriately to conform to the known distribution of these population characteristics.[1] This was accomplished in the initial survey of each cohort through two stages of ratio estimation.

The first stage of ratio estimation takes into account differences at the time of the 1960 Census between the distribution by color and residence of the population as estimated from the sample PSU's and that of the total population in each of the four major regions of the country. Using 1960 Census data, estimated population totals by color and residence for each region were computed by appropriately weighting the Census counts for PSU's in the sample. Ratios were then computed between these estimates (based on sample PSU's) and the actual population totals for the region as shown by the 1960 Census.

In the second stage, the sample proportions were adjusted to independent current estimates of the civilian noninstitutionalized population by age, sex, and color. These estimates were prepared by carrying forward the most recent Census data (1960) to take account of subsequent aging of the population, mortality, and migration between the United States and other countries.[2] The adjustment was made by color within three age groupings for the two older cohorts and within five age groupings for the two cohorts of youth.

Weights for subsequent years As a result of the above steps, each sample person has a weight which remains unchanged throughout the life of the study. The universe of study was thus fixed at the time of interview for the first survey. No reweighting of the sample was made after subsequent surveys since the group of interviewed persons is an unbiased sample of the population group in existence at the time of the first survey only. The number of individuals with whom initial interviews

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[1] See U.S. Bureau of Census Technical Paper No. 7, "The Current Population Survey--A Report on Methodology," 1963, for a more detailed explanation of the preparation of the estimates.

[2] See U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 352, November 18, 1966, for a description of the methods used in preparing these independent population estimates.

were conducted was 5,020[1] for the men, 5,083 for the women, 5,225 for the boys, and 5,159 for the girls.

D. Coding and Editing

Most of the data on the interview schedules required no coding, since a majority of the answers were numerical entries or in the form of precoded categories. However, clerical coding was necessary for the occupational and industrial classification of the several jobs referred to in the interview. The Census Bureau's standard occupation and industry codes used for the CPS were employed for this purpose. Codes for other open ended questions were assigned by the Census Bureau, in some cases on the basis of guidelines developed by the Center for Human Resource Research from tallies of subsamples of the returns.

The consistency edits for the interview schedules were completed on the computer by the Census Bureau. For the parts of the questionnaire which were similar to the CPS, a modified CPS edit was used. For all other sections separate consistency checks were performed. None of the edits included an allocation routine which was dependent on averages or random information from outside sources, since such allocated data could not be expected to be consistent with data from previous or subsequent surveys. However, where the answer to a question was obvious from others in the questionnaire, the missing answer was entered on the tape. To take an example from the initial survey of the middle-aged men, if item 39a ("Is there a compulsory retirement age where you work?") was blank but legitimate entries appeared in 39b and c ("At what age?" and "Would you like to work longer?") a "Yes" was inserted in 39a. In this case, only if 39a was marked "Yes" could 39b and c be filled; therefore the assumption was made that either the card punch operator failed to punch the item or the interviewer failed to mark it.

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[1]Actually, 5,027 men were interviewed in 1966. As the result of an error, however, the original data tapes contained duplicate records for each of seven respondents, yielding a total of 5,034. After the error was discovered, one of each pair of duplicate records was blanked in each subsequent survey, but not necessarily the same one from one survey to the next. After a careful scrutiny of the seven pairs of records, the research staff of the Center concluded that there was no accurate way of preserving the longitudinal integrity of the data for the seven respondents involved. All fourteen records were therefore eliminated from the revised tapes.

III DESCRIPTION OF THE NLS DATA

The National Longitudinal Surveys were designed primarily to analyze the sources of variation in the labor market behavior and experience of the four age-sex subsets of the U.S. population represented by the samples. Thus, the information collected from the respondents in the several samples relates to variables that either represent significant aspects of labor market activity and labor market status or that are hypothesized to influence such activity or status.

In order to know precisely what information is available and how it has been coded, there is no substitute for a careful examination of the interview schedules and codebooks. Nevertheless, it is possible to describe here in fairly specific terms the major variables that are included in the data tapes. Although the classification is not entirely satisfactory, the variables will be categorized in the following pages under the major headings of "labor market experience variables," "socioeconomic and human capital variables," and "environmental variables." Where information has been collected on a particular topic for only a single cohort or in only a particular year, this will be indicated. For convenience, the four cohorts will be identified as M (men 45-59 years of age), W (women 30-44 years of age), B ("boys," i.e., young men 14-24), and G ("girls," i.e., young women 14-24). Where reference is to a particular survey year, the last two digits of the year will be used. "Survey week" will be used to refer to the calendar week preceding the interview with each respondent, which is the reference week for questions relating to labor force and employment status.

A. Labor Market Experience Variables

Labor force participation There are several variables used to measure the extent of labor market participation of the respondents. Except where otherwise indicated, these are uniform across cohorts and across surveys.

> Survey week labor force status. This is the conventional measure based on the individual's activity in the survey week. The interview questions and the coding procedure for classifying individuals are identical to those used in the Current Population Survey.
>
> Number of weeks worked. In each survey, information was obtained on the number of weeks during a specified period in which the respondent had done any work for pay or profit. In most cases, the period covered was the 12 months prior to the interview. However, in M66, W67, and G68, it was the preceding calendar year, and in M71, W71-72, B70-71, and G70-73 it was the total number of weeks since the preceding interview.

Number of hours per week usually worked. Respondents were asked the number of hours they "usually" worked in the weeks in which they worked.

Number of hours worked in survey week. This is based on questions identical to those in the CPS.

Work experience prior to initial survey. In W67 only, respondents were asked the number of years since leaving school in which they worked at least six months. For married women without children this was divided between (a) the period between school-leaving and first marriage and (b) the period since first marriage. For married women with children, there were three periods covered: (a) school-leaving and first marriage, (b) first marriage and birth of first child, and (c) since birth of first child.

Unemployment Except as indicated the several measures of unemployment are uniform across cohorts and across survey years.

Survey week employment status. Employment status ("at work," "with a job but not at work," and "unemployed") is defined and measured exactly as it is in the CPS. For those unemployed, this includes a measure of duration and a specification of method(s) of job search.

Number of weeks unemployed. For weeks in which they did not work, respondents were asked in how many they were on layoff from a job or were looking for work. The relevant time period varies among cohorts and survey years in exactly the same way as number of weeks worked, described above.

Spells of unemployment in preceding 12 months. This measures the number of separate periods of unemployment. There is the same variation among survey years in the precise period covered as in the case of number of weeks of unemployment.

Job history prior to initial survey In the initial survey of each cohort, a number of questions are asked relating to particular jobs held by the respondent in the past. These are less extensive in the case of the two younger cohorts than in the case of the women and men. Generally speaking, a job is defined as a continuous period of service with a given employer or in a self-employed status. Information is collected on length of service in the job and on the reason for having left it. Class of worker is also coded, as are both occupation and industry of employment. The latter two variables are coded in terms of the 1960 Census classification system at the three-digit level. In addition, most occupational assignments are coded according to "prestige" level as measured by the

Duncan socioeconomic index.[1] Finally, location of job is coded in such a way as to permit identification of cases of geographic mobility. The specific retrospective job history information that has been collected for each cohort is described below.

Men. Respondents were asked in the 1966 survey about their first job after leaving school, the longest job of their entire career, and, in cases where they had been in their current job less than five years, about their immediately preceding job. In addition, they were asked to identify the "best" occupational assignment of their career, and, if no longer in it, the reason and whether they would like once again to be practicing that occupation.

Women. In the 1967 survey, each married respondent who had ever borne children was asked about three jobs held in the past: longest job between time of school-leaving and first marriage, longest job held between time of first marriage and birth of first child, and longest job held since birth of first child. Married respondents who had never had children were asked to identify the longest job held between school and first marriage and the longest held since that marriage. Never-married respondents with no children were asked about the first job after leaving school that lasted at least six months and the longest job ever held. Never-married respondents who had borne children were asked about the longest job held between the time of leaving school and birth of first child and the longest job held since the birth of that child.

Girls and boys. In B66 and G68, respondents were asked about two previous jobs: the first in which they had served at least a month after leaving full-time school and the job, if any, they had held during their last full year in high school. In addition to the usual questions about occupation, industry, length of service, etc., respondents were asked how they had found each of these jobs.

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[1] For a description of the Index, see Otis Dudley Duncan, "A Socioeconomic Index for All Occupations" in Albert J. Reiss, Jr., and others, Occupations and Social Status (New York: Free Press of Glencoe, 1961), pp. 109-38.

Job history since the initial survey During the five years covered by the National Longitudinal Surveys a fairly detailed record of the jobs held by respondents has been maintained. The extent of detail, however, varies somewhat across the several years of the surveys, since a work history schedule designed to obtain information about every occupation and every employer for whom the respondent worked since the preceding interview was not instituted until 1970 for the two younger cohorts and 1971 for the women and men.

Survey week job. In all surveys of all cohorts, information has been collected on the job held by the respondent in the survey week or, if not employed, on the most recent job. The questions are identical to those used in the Current Population Survey and permit the coding of occupation, industry, class of worker, and location. Duncan socioeconomic status is also coded for the occupation. In addition to the CPS questions, respondents are also asked how much they usually earn at their current job, how many hours per week they usually work at it, and whether there is premium pay for overtime. In M69-71, W71-72, G70-73, and B69-71 each employed respondent was asked whether he was covered by a collective bargaining agreement and, if so, the type of union or employee association and whether he was a member.

Jobs held between interviews. As has been mentioned, the extent of detail recorded for jobs held between survey weeks became greater when a new means of obtaining this information was introduced into M71, W71, B70, and G70. In prior surveys, generally speaking, where an employed individual was in a job different from that held at the time of the previous interview, information was collected on reason for having left the previous job, and number of jobs held between the two survey dates. For the longest such job, information was obtained on occupation, industry, location, length of service, and reason for leaving. After the introduction of the detailed work history, information was obtained on each occupational assignment and each different employer for whom an individual worked since the date of the preceding interview.

Interfirm mobility. The occurrence of an interfirm job change between any two adjacent survey dates is ascertained by a clerical comparison of the name of the employer in each of the two survey weeks. The occurrence of an interfirm shift between the initial survey and any subsequent (nonadjacent) survey until the final one is ascertained on the basis of an examination of the codes for interfirm shifts between adjacent years. Thus, for example, the code for whether a respondent in the young men's cohort has made an interfirm shift between

1966 and 1968, is based on the codes for interfirm shifts between 1966 and 1967 and between 1967 and 1968. If the respondent has changed employers over either of these one-year periods, he is treated as having made an interfirm shift over the two-year period 1966-1968. (Note that a young man who was with employer A in the survey week of 1966, with employer B in the survey week of 1967, and back with employer A in the survey week of 1968 would have been coded as having changed employers between 1966 and 1969.) In the final survey of each cohort, the question whether there has been an interfirm shift, i.e., a change of employer between the initial and the final survey, is based upon a comparison of the names of the employers in those terminal years.

Migration. Although the location (city and state) of each job is contained in the interview schedule, Census rules of confidentiality preclude coding a geographic location in any greater detail than Census Division. Nevertheless, comparisons of location from one survey year to the next have been made and individuals are coded according to whether they are in the same county or SMSA as that of the preceding interview. Thus, the data permit an analysis of the incidence and the extent of geographic movement but do not permit an analysis of the direction of movement among areas smaller than a Census Division.

Commuting time and costs. Commuting time and costs were obtained for the job held in the survey week in W67-72, G68 and G73, M71, and B71.

B. Socioeconomic and Human Capital Variables

Early formative influences In the initial survey of each of the cohorts, information was collected on a number of aspects of the early background of the respondent. Among the characteristics included in all of the cohorts are nationality (based upon country of birth of respondents, parents, and/or grandparents); type of residence as a teenager (farm, rural nonfarm, urban, suburban, etc.); father's educational attainment and occupation; mother's occupation and educational attainment; and family structure when respondent was 14 or 15 years of age. In addition, for the two cohorts of youth, another dimension of the socioeconomic status of family of origin is provided by an index indicating the extent of reading materials in the home when respondent was 14 years of age.

Education Information on educational attainment is more complete for the two cohorts of youth than for the two older cohorts. In the case of the men, information was collected in the initial survey on highest year of regular school completed. Type of high school curriculum was also obtained for those with as many as three years of high school.

For the women, highest year of regular school completed was obtained as well as type of high school curriculum. In addition, the acquisition of typing and shorthand skills was ascertained for respondents who had attended high school, and field of study in college was obtained for those with as many as three years at that level.

For the two cohorts of youth, information on current enrollment status has been obtained in each survey, as well as highest year of regular school completed. Thus, movement into and out of the formal educational system through the five years covered by the surveys can be discerned. High school curriculum, field of specialization in college, and the existence and amount of scholarship aid in college are illustrative of the kinds of information available for the young men and women. Also, from questionnaires sent to the last high schools attended by the respondents, there are data on school characteristics that form the basis for an index of high school quality.

Training Information has been collected in every survey on extent and character of training outside the formal education system. In the initial survey of each cohort questions were asked about training received in company training programs, in business college, technical institutes, apprenticeship programs, or from any other source. Additionally, in each subsequent survey a comparable question was asked concerning any training received since the previous interview. In any instances of such training, information was obtained concerning the source and type of training, its duration and number of hours per week, and whether the program was completed.

Health and physical condition In the initial survey of each cohort respondents were asked whether health problems or physical conditions either prevented working or limited the amount or kind of work they could do. If so, the nature and duration of the limitation were described. The questions were repeated in M67-71;[1] W69-72;[1] G70, G71, and G73; and B68, B70, and B71. In the 1971 surveys of all four cohorts, these questions were supplemented by a set of detailed questions about the precise nature of functional limitations and the kinds of environmental working conditions that had to be avoided because of health problems. A second type of health measure was obtained for the two older cohorts in the initial survey. This was a self rating in which the respondents were asked to indicate whether their health, as compared with other persons their age, was "excellent," "good," "fair," or "poor."

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[1] In the 1967 survey of men and the 1969 survey of women the health variable was a comparative one; i.e., respondents were asked to compare their health in that year with their health at the time of the previous interview.

Marital and family characteristics In each of the surveys, a considerable amount of information has been collected about the relationship between the respondent and other members of his family, as well as on the characteristics and activities of other family members.

Marital status. Current marital status has been obtained in every survey for all cohorts. In addition, marital history prior to the first survey was obtained in the initial survey of the women.

Family structure of household. In every survey of each cohort information was collected on all members of the household related to the respondent. The data include relationship to respondent; age; school enrollment and highest year of school completed; and, for persons 14 years of age and over, weeks worked during the past 12 months, usual number of hours per week, and occupation of longest job.

Health condition of spouse. In each survey in which the health of respondent was explored, analogous questions were asked concerning the health of respondent's spouse.

Children. For the older female cohort, information exists on the number of children ever born or adopted who are not currently residing in the household. For the men, the 1966 interview schedule ascertained the number of sons and daughters living outside the household, and the highest year of school completed by each.

Number of dependents. All cohorts were asked in each survey how many persons (other than self and spouse) are dependent upon respondent for at least one-half of their support.

Parents. In all cohorts, respondents were asked whether their parents and parents-in-law were alive. This question was asked in B66 and G68 and in all surveys of the two older cohorts. For the two younger cohorts, information was collected in each survey on the extent and type of employment of both mother and father, even if not living in household.

Child-care arrangements. In every survey of both of the female cohorts, information was collected from all employed women with children on type of and costs of child care arrangements. For those unemployed and out of the labor force, questions were asked about the need for child care should the respondent find a job or decide to work outside the home. In W71 and G71 the child-care questions were especially detailed, and were asked with respect to each of three age categories of children (0-2, 3-5, 6+).

Fertility plans. In G71 and G73 each respondent was asked her view on "the ideal number of children for a family" and how many (more) children she expected to have. If currently married, she was also asked how many children she expected to have over the next five years and when she expected to have her next child.

Financial characteristics Rather detailed information relating to the wealth and the income of respondents and members of their families exists for all cohorts over the several years covered by the surveys.

Assets. Detailed questions were asked about assets owned and liabilities owed by respondent and spouse in M66, M69, and M71; B66, B70, and B71; W67, W71, and W72; and G68, G71, G72, and G73. Although the degree of detail varies somewhat among cohorts, in M66 the questions related to ownership of home; farm; business or professional practice; other real estate; automobile(s); savings or checking accounts; U.S. Savings Bonds; stocks, bonds, or shares in mutual funds; mortgages or other loans due; and to several other types of debt. In the years in which detailed asset questions were not asked, respondents were simply asked whether their overall financial position was better, about the same, or worse than a year earlier.

Income. In each survey there are fairly detailed questions on income received by respondent and spouse, and (in the case of the women's and men's cohorts) by other family members during the preceding twelve months (calendar year in G68, W67-72, and M66-71). Here again there is variation among cohorts in the specific sources of income that are specified. In the case of M66, the list includes wages, salaries, commissions, and tips; (net) income from a business or profession; (net) income from operating a farm; unemployment compensation; rental income; interest or dividends or income from estates or trusts; disability benefits from a variety of sources; (other) Social Security benefits; (other) public assistance or welfare payments; food stamps; government pensions; and all other sources.

Military service For the older cohort of men, information was obtained in M69 on whether respondent ever served in the armed forces and, if so, when. For the younger cohort, the initial survey likewise ascertained whether the respondent ever served in the armed services and, if so, duration of service and age at separation. Respondents who had not served were asked whether they had ever tried to enter the service and, if so, why they had not been accepted. In B69 a series of questions

asked of those who had ever served in the Armed Forces ascertained branch of service, duration of service, rank and age at separation, and military occupation. The same series of questions was asked in B71, as well as the respondent's perception of whether his period of military service helped or hurt his career, and why. Finally, in B67-71, current draft classification of each respondent was obtained and, if 1-Y or 4-F, reason for rejection.

Job attitudes A variety of measures of attitudes toward current job have been included in the surveys of all four cohorts.

Job satisfaction. In each survey of every cohort, employed respondents have been asked how well they like their current jobs. Responses are classified into four categories: "like very much," "like somewhat," "dislike somewhat," and "dislike very much." In the initial survey of each cohort, employed respondents were asked to indicate what factors they liked best about their jobs and what factors they liked least. Up to three factors were coded in each category. This question was repeated for all employed workers in M71, B69-71, W71-72, and G70-72.

Job attachment. In the initial survey of each cohort, employed respondents were asked to react to a hypothetical job offer in their line of work with another employer (a) if it is in the same local labor market area, and (b) if it is elsewhere. In each case the respondent is asked how much the job would have to pay in order for him to be willing to take it. These questions are repeated in M71, B69-71, W71-72, and G70-72.

Expected tenure in current job. For both female age cohorts, the initial survey instrument asks respondents how long they will continue to work at their present job and, if the answer is less than five years, what their plans are immediately thereafter.

Work attitudes As distinguished from attitudes toward specific jobs, the surveys have also attempted to tap a variety of attitudes toward work in general.

Work commitment. Respondents in each of the four cohorts who are in the labor force have been asked at some time during the five years covered by the survey whether they would continue to work if, by some chance, they were to get enough money to live comfortably without working. This question was asked in W67 and W72, in G70 and G72, in B69 and B71, and in M66 and M71.

Work motivation. In the initial survey of each cohort, respondents were asked "What would you say is the more important thing about any job: wages or liking the kind of work you are doing?"

Attitudes of nonemployed workers. In every survey, unemployed workers have been asked what kind of work they are looking for, whether there are any restrictions on their availability for work, and what wage rate they require. Workers out of the labor force have been asked whether they would take a job if offered one by an employer. In cases of affirmative answer, the type of work required and the wage rate are explored.

Retirement attitudes and plans. In each of the surveys of the older group of men, respondents have been asked at what age they expect to retire from their regular job and what their plans are thereafter. There are also questions relating to whether there is a compulsory retirement age and whether the respondent will be eligible for benefits under a pension plan other than Social Security. In M71 questions on retirement were substantially expanded. In addition to those that appeared in previous surveys there were questions relating to the eligibility characteristics of the private pension plan under which the respondent is employed and to the amount of benefits to which the respondent will be eligible. In addition, there were questions exploring the respondent's attitude toward retirement and his perception of the views of his wife and of his retired friends.

Attitude toward women's role. In the initial surveys of the women and the girls there were questions (which differed somewhat as between the two cohorts) designed to measure the respondent's attitude to the propriety of labor market activity on the part of married women with children. Respondents were scored along a continuum ranging from extremely favorable to extremely antagonistic attitudes. The questions were repeated in M71, B71, W71, and G72. In addition, in W71 and G72, a more elaborate scale was included for measuring the same attitude.

Husband's attitude toward wife's working. In W67, W72, G68, and G72 each married respondent was asked about her husband's attitude toward her working. There are five categories of response, ranging from "like it very much" to "dislike it very much."

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Aspirations and expectations. In every survey of the two cohorts of youth, questions were asked concerning both educational and occupational aspirations. In each case, where the response in a given year differed from that of the previous year, reasons for the change were explored.

Educational aspirations and expectations. In every survey the young men and women who were enrolled in school were asked how many years of education they would like to obtain. In B66, B69-71, G68, and G70-73 they were also asked how many years of schooling they thought they actually would obtain, and the reason for any discrepancy between the two responses.

Occupational aspirations. In each survey the young men and women respondents were asked what kind of work they expected to be doing at age 30 (in the case of the boys) or age 35 (in the case of the girls).

Attitudes toward high school and college. In B66 and G68 respondents who were attending or had attended high school were asked how well they (had) liked their high school experience, the subjects they liked best, and the subjects they liked least. A comparable set of questions relating to college was asked of those with college experience.

Other social psychological variables. There are three additional social psychological variables used in the NLS that are of particular importance. The first of these is available for all four cohorts, while the other two relate only to the two cohorts of youth.

Rotter I-E scale. In the 1968 survey of the boys, the 1969 surveys of the men and women, and the 1970 survey of the girls an abbreviated version of the Rotter I-E scale was administered. The Rotter test purports to measure perceived "locus of control," i.e., whether an individual believes that he is master of his own destiny (internal) or that what happens to him is determined by forces over which he has little or no control (external). The identical test was administered again to respondents in G73, M71, W72, and B71.

Mental ability. For each of the two cohorts of youth, scores on mental ability tests were obtained from the last high school attended by each respondent. Because reported scores were not all in the same form or even from the same test, the scores were standardized to a common metric (mean of 100 and standard deviation of 16). Analysis of the pooling of the scores from the approximately 30 tests that were represented led to the conclusion that the standardized scores may legitimately be used. The data tapes contain the standardized as well as

stanine scores and codes indicating the respondent's location if the population were divided into halves, thirds, quartiles, quintiles, or deciles according to ability.

Labor market information. In B66 and G69 there were sets of questions designed to measure the extent of respondents' occupational information. In the case of the young men, respondents were asked to identify ten occupations, to indicate the amount of education the typical incumbent of each occupation had, and to indicate for each of eight pairs of occupations the one in which earnings are higher. For the young women the occupational information test consisted solely of ten occupational identification questions.

Retrospective evaluation of labor market experience In the final surveys of each of the cohorts (M71, W72, B71, G73) a series of questions was asked relating to the respondent's perception of his labor market experience over the years covered by the surveys. For the men and women the time reference was the entire five-year period. Since many of the boys and girls were still full-time students at the beginning of the surveys, a two-year time period was used for these two cohorts in order to maximize the number of respondents for whom the questions would be relevant. In all cohorts, respondents who had been employed by the same employer over the relevant time period were asked about the extent to which and the reasons why they had sought other jobs or had thought of doing so, as well as about job offers they may have received and the reasons for having turned them down. All respondents, irrespective of whether employed with the same employer, were asked whether they believed they had "progressed, moved backward, or just about held your own" over the period, so far as work was concerned. The bases for the response to this question were then explored. In the women's, men's and boys' surveys, respondents were asked whether they had suffered any of a variety of forms of labor market discrimination.[1] Finally, for the two older cohorts, respondents were asked whether, as they looked back over the past five years, they perceived any difference in (a) job pressures, (b) extent of fatigue, and (c) ability to keep up with the pace of their job.

C. Environmental Variables

Several characteristics of the local area in which the respondent resides have been coded on the data tapes. In all cases these derive from sources other than the National Longitudinal Survey instruments

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[1] Similar questions were asked of the young girls in G72.

themselves. The local area to which the data relate is, with very few exceptions, one of the 235 Primary Sampling Units (PSU's) from which the samples were drawn, and almost invariably consists of either an SMSA or one or more counties.

Size of labor force in local area This variable, obtained from the 1960 Census of Population tabulations, appears for all four cohorts. All respondents were coded according to the size of the labor force in the area in which they resided at the time of the initial survey. If a respondent subsequently changed residence, the variable was coded only if the area into which he or she moved was one of the PSU's from which the sample was drawn.

Local area unemployment rate The average rate of unemployment in the local area is coded for each survey year beginning in 1967. The rate for each year was derived from a 12-month average of the monthly unemployment rates obtained for the local area from the Current Population Survey. Thus, the unemployment rate is unavailable for individuals who, subsequent to the initial interview, moved into areas not included in the CPS sample. It should be noted that the sampling errors of these unemployment rates are large, especially for the smaller areas.

Index of demand for female labor This measure, which appears for the two female cohorts, purports to measure the relative extent of job opportunities for women in the local area. Based on data from the 1960 Census, the index is identical to that constructed by William T. Bowen and T. Aldrich Finegan in The Economics of Labor Force Participation.[1] The variable was coded for the area of residence at the time of the initial survey. If a respondent changed her residence, the variable was coded for the area into which she moved only if it was in the original sample.

Index of demand for teen-age male labor This variable, which appears only for the boys, is based on data from 1960 Census tabulations. Again following Bowen and Finegan, the index represents the sum of the percentages of total employment in the area represented by agriculture and retail trade. The index is not coded for any year in which the respondent resides in an area that was not included in the original sample.

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[1] Princeton: Princeton University Press, 1969, pp. 772-6.

Presence of accredited colleges in local area In the initial survey of both the young men and the young women, each respondent was coded according to the presence and type (private or public; men, women, or coed) of accredited two- and four-year colleges or universities in the area. The information on which these codes were based was obtained from Barron's Profiles of American Colleges, 1965 and Barron's Guide to the Two-Year Colleges, 1960 (Barron's Educational Series, Inc., Woodbury, New York). Unlike the other environmental variables, this one appears only for the initial survey of each of the two cohorts.

IV THE PUBLIC-USE TAPES AND THE NLS CLEARING HOUSE

Under its contract with the Department of Labor, the Center for Human Resource Research has assumed the responsibility of making revised National Longitudinal Surveys data tapes and documentation available to the research community at the (marginal) cost of producing them. The Center has also assumed the responsibility of serving as a clearing house both with respect to problems that are discovered in the data files and with respect to ongoing and completed research. In this section, we discuss the schedule for releasing the revised tapes and documentation, the procedure for ordering data files, and the clearing house mechanism.

A. The Data Files

Availability The first revised data files, covering the 1966-1969 surveys of the men and the 1967-1969 surveys of the women will be available soon after the beginning of 1974. Data files for the 1966-1969 surveys of the boys and the 1968-1969 surveys of the girls will become available in April 1974.

The release dates for updated, cumulated versions of the data files containing later surveys will, in general, be one year after the relevant data tape is delivered by the Bureau of the Census to the Center. For example, since the tape containing the data from the 1971 survey of men was received late in 1973, the expected release date for the tape covering the 1966-1971 surveys is September, 1974. On the basis of the same guidelines, the tape for the 1967-1971 women's surveys will be available in mid-1974 and that for the 1968-1970 girls' surveys in September 1974. As of the end of calendar year 1973, the Center has not received data files for the 1970 and 1971 surveys of the boys, the 1971, 1972, and 1973 surveys of the girls, and the 1972 survey of the women.

The data file made available to a purchaser at any given time will include the cumulative record for the relevant cohort up to that time For example, individuals who purchase the data file for the men at any time prior to September, 1974 will receive the data covering the surveys from 1966 through 1969. Persons who purchase the file in September, 1974 or thereafter will receive data covering the entire five-year period, 1966-1971. At each new release date for a given cohort, the data file will be revised not only to include an additional survey year, but also to correct any errors in the data that have been called to the attention of the Center.

Price At any given time, the total price of the cumulated data file for each of the cohorts is $300.00. This price entitles the purchaser to the following package of material:

1. A computer tape in one of twelve forms.[1]
2. The NLS Handbook.
3. One copy of each of the interview schedules for the relevant cohort.
4. One copy of each of the interviewers' reference manuals for the relevant cohort.
5. Two copies of the code book, which describes and defines each variable, indicates its location on the data file, and presents its frequency distribution.
6. Two indexes of all variables, designed to facilitate the use of the data: One arranged numerically by tape location and the other arranged alphabetically by key words. Two copies of each index will be included.
7. For those whose computer system can use it, a copy of the documentation on computer tape.

B. Clearing House for Data Problems

The extensive revision of the data files has uncovered a number of errors in the original tapes that have required correction, as well as inaccuracies or lack of clarity in the documentation. Moreover, despite elaborate precautions, it is not improbable that errors have been introduced into the data during the process of tape revision. Finally,

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[1] Purchasers may select any one of the following six versions of the tape in either blocked or unblocked records: (a) 9-track EBCDIC, 800 bpi standard labels; (b) 9-track EBCDIC, 1600 bpi standard labels; (c) 7-track, BCD, 800 bpi, no labels; (d) 7-track, BCD, 556 bpi, no labels; (e) 9-track, IBM floating point binary, 800 bpi, standard labels; (f) 9-track, IBM floating point binary, 1600 bpi, standard labels. Purchasers who require a tape or record layout other than the standard options listed above may be faced with additional charges.

since there was no attempt to conduct an exhaustive evaluation of every variable on the tapes, there may be errors in the revised data files that have been carried over from the original versions. For all of these reasons, it is not unlikely that as research proceeds with the revised NLS data files at Ohio State and elsewhere, questions will arise concerning suspected errors in the tapes or the documentation. The Center for Human Resource Research is prepared to investigate questions of this kind. Where investigation uncovers an error, all purchasers of the relevant data tape will be apprised of its nature and how it should be corrected. In addition, of course, the error will be corrected on the master tape so that it will not appear on copies released subsequently. All questions and problems of this nature should be brought to the attention of:

Ms. Ellen Mumma
Center for Human Resource Research
215 W. 11th Avenue
Columbus, Ohio 43201 (614) 422-1584

Documentation Where there is a lack of clarity, an apparent inconsistency, an apparent omission, or a similar problem relating to the documentation, it can be presented either by mail or telephone. In the former case, it is desirable to indicate the name of the individual who had originally purchased the data tape and documentation.

Data files Users who identify what they believe to be errors in the content of the data files are urged to report these in writing, since matters of this kind will rarely be able to be resolved in a telephone conversation. In communications of this kind, care should be taken to identify the problem as precisely and with as much detail as possible. Specifically, there should be an exact definition of the universe of respondents under consideration and a brief statement of the nature of the problem. Variables in question should be identified by reference number, and attributes by their numeric codes. The process of checking matters of this kind may frequently be facilitated if the request for clarification is accompanied by a copy of the computer output which gives rise to the question, along with a listing of the deck which produced the run. Lastly, the request should include the name and telephone number of the person to be contacted in the event that further information is required.

C. Clearing House for Research

In order that the researchers working with the NLS data may be apprised of comparable studies going on elsewhere, the Center will assume the responsibility of serving as a clearing house for information relating to completed research as well as research projects in progress utilizing the NLS data.

NIS Newsletter As a means of communicating this information as well as other developments relating to the NIS, the Center will prepare and distribute to all tape purchasers a quarterly NIS Newsletter which will contain titles and citations of completed research reports, brief descriptions of research projects in progress, information relating to the status and availability of data tapes, and other information of general interest. All known users of the NIS data files will be sent questionnaires approximately a month to six weeks before publication of the Newsletter requesting information of this type.

V CHARACTERISTICS OF NLS DATA FILES

In revising the data files, the Center has been guided by the objective of making them readily usable by the largest possible number of researchers. To this end, all alphabetic and "wild" (illegal) codes that had appeared on the original versions of the tapes have been eliminated. In addition, the coding of a number of variables has been standardized across surveys and across cohorts, although this process has not been carried as far as might ideally have been desired. In this section, the major characteristics of the revised data files are described.

A. Tape Format

Several alternative tape formats are available to accommodate a wide variety of computer processing installations. The standard options, identified on the NLS Order Form, involve various combinations of alternative tape recording and coding techniques. In all cases, however, one logical record will contain all the data accumulated for a given respondent. The length of each record[1] is determined by the number of variables for each respondent, which, of course, is constant for a given release. Thus, every release of the women's cohort, for example, will consist of 5,083 fixed-length records.

B. Variable Attributes

In order to facilitate retrieval of the data, each variable on the revised public use tapes has a uniform length of four characters (bytes). Variable numbers (Vbl#) have been assigned to identify the relative location of each variable within a record.[2] The absolute address of a given variable can be determined very simply from this information.

The following FORTRAN example, which is applicable only to the BCD and EBCDIC options, illustrates the advantages of fixed length variables identified by variable numbers.

```
      REAL*4    X(1500)
      READ  (2,1)   X
    1 FORMAT  (15 (100F4.0))
      IF (X(530) .LE. 0.) GO TO 10
      RATIO = (X(119) + X(1485)) / X(530)
C   RATIO INVOLVES VBL#'S  119, 1485, AND 530
   10 CONTINUE
```

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[1] In this section, "record" refers to a logical record rather than a physical record.

[2] While additional variables will be added in subsequent releases of the data tapes, these will be assigned new variable numbers. Variable numbers, once assigned, will not be changed.

Several other conventions have been uniformly followed in order to facilitate data processing:

1. The only characters which occur on the tapes are

   -, 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

2. All values are represented as integers. Some variables (e.g., HOURLY RATE OF PAY) may have an implied decimal, but no fractions occur.

3. Codes are padded with high-order zeroes.

4. Negative codes are indicated by a minus sign (-) in the leftmost byte.

C. Split Variables

An apparent contradiction to the fixed-length rule is the fact that some variables have values which require more than four characters (x>9999 or x< -999). To accommodate these variables, two contiguous variable locations are used to contain the data. Except for the sampling weight (seven characters), the only variables that exceed four characters as of the present writing are certain monetary variables. In order to standardize the use of the split variable, all monetary variables (e.g., hourly rate of pay, income, assets, liabilities, etc.) are split, even when the maximum values do not require more than four characters.

In a split variable, the leftmost location contains the thousands portion of the value; the rightmost location contains the remainder. When the value is negative, both "subvariables" contain a minus sign. To illustrate, if variable numbers 57 and 58 identify a split income variable, then

$$\text{INCOME} = 1000 * X(57) + X(58)$$

would determine the true value of the variable. The following table illustrates how representative values are coded as split and as "non-split" variables.

Representation of Some Typical Values
Encoded in BCD and EBCDIC

Value	Split Variables X(I)	X(I+1)	Non-Split Variables X(I)
0	0000	0000	0000
8	0000	0008	0008
1000	0001	0000	1000
1234	0001	0234	1234
22333	0022	0333	must be split
345678	0345	0678	must be split
-1	-000	-001	-001
-235	-000	-235	-235
-2345	-002	-345	must be split
-98765	-098	-765	must be split

D. Floating Point Binary

The floating point binary option is strongly recommended to those researchers whose computer installations are compatible with IBM 360/370. Users will find this option particularly attractive since it presents a core image of the data. The following FORTRAN example should help explain how to use this option.

```
      REAL*4    X(1300), NA, DK
      NA = -(16.**10)
      DK = -512000.
      READ (2,1) X
    1 FORMAT (13 (100A4))
C   'A' FORMAT IS ESSENTIAL IN FORTRAN
      IF (X(17) .EQ. NA .OR. X(17) .EQ. DK) GO TO 10
      IF (X(17) .NE. 0.)   ANSWER = X(223) / X(17)
   10 CONTINUE
```

In the floating point binary option there are no split variables, since none is needed. However, since there is only one version of the documentation, there will be references to split variables. These should be ignored by those who have ordered the floating point binary

option. In this version of the tape, the second variable location in such cases will contain hexadecimal 4040404.[1]

E. Standardized Coding Conventions

Uniform "NA" code "NA" is the convention used to describe the absence of a valid coded response. Substantively, "NA" can represent cases where (1) the respondent should not have a valid code since he was not in the applicable universe, and (2) the respondent has no valid code due to refusal, interviewer error, or coding, transcribing, or data entry error. All of these situations are coded identically with a value of -999. Split variables have -999 in each location, yielding a value of -999999. In the floating binary option, NA is uniformly coded with the value -(16.**10), or hexadecimal CB100000.

Uniform "DK" code "DK" is used in the codebook to refer to responses of "DON'T KNOW." Such responses have been assigned the uniform code of -987. Split variables have -987 in each location yielding -987987. In the floating binary option, DK is uniformly coded with the value -512000, or hexadecimal C57D0000.

Multiple entry variables There are a number of items in the questionnaires which permit multiple-entry responses. For example, for the question "What have you been doing in the past four weeks to find work?" enumerators were instructed to mark as many of the following methods as were mentioned by the respondent:

Checked with public employment agency
Checked with private employment agency
Checked with employer directly
Checked with friends or relatives
Placed or answered ads
Other method

For each multiple-entry variable, the individual categories are coded in a geometric progression. In the foregoing example, "public employment agency" would be coded 1; "private employment agency," 2; "employer directly," 4; "friends or relatives," 8; "ads," 16; and "other," 32. Multiple responses are then coded by adding the individual codes, which yields a unique value for each combination.

---

[1] These locations are ideal for locally created variables.

Dichotomous variables Dichotomous variables of a yes/no variety are uniformly coded ("Yes" = 1; "No" = 0). Other dichotomous variables have frequently been reformulated to permit this convention to be followed.

Combination quantitative-qualitative variables Some variables which are ostensibly quantitative may have several non-quantitative (categorical) responses. In such cases, the quantitative responses are represented by positive integers which equal the actual values, while the qualitative (categorical) responses are represented by negative values, beginning with -1. For example, expected age of retirement is coded as follows:

45 THRU 99	actual age
-1	already retired
-2	never plan to retire

Cross-referenced variables In the questionnaires, and in the original versions of the data files, the responses to some questions were coded in such a way as to require reference to the response to another question. For example, in the case of the men, if respondent's job at the time of the 1966 survey was the longest job he had held between leaving school and the time of the 1966 survey, the occupation of longest job was coded "same as current job." Otherwise, the actual three-digit occupation code was recorded.

In the revised data files, no such cross-referencing is required. In the above illustration, "occupation of longest job" is given the three-digit code of "current job" in those instances where current and longest job are the same.

Confidentiality rules Pursuant to Census regulations relating to confidentiality, total annual income (or any component thereof) cannot be shown if it is in excess of $50,000. Hence, all such variables have been edited so that values in excess of $50,000 are coded as $50,000.

F. Guidelines for Data Management

On the basis of a survey conducted among potential purchasers of the revised NLS data files, it appears that most researchers who acquire the files will desire to revise them by reformatting, subsetting, or creating new variables. Since the Center can accept responsibility only for the tapes and documentation which it has supplied, users who intend to modify the data should develop a set of standard operating procedures

to guarantee the integrity of the tapes furnished by the Center. The following guidelines are suggested:

1. Changes should never be made in a tape received from the Center; rather, a new tape should be produced.

2. A copy of each original tape should be made as soon as possible.

3. All modifications should be carefully documented; programs and program specifications should be saved.

4. New output tapes should be used for all subsequent revisions. The data set name should identify the generation number and cohort of each file.

5. The addition of locally-created variables will usually entail expansion of the logical record length. Since many users will later wish to obtain future versions of the data files from the Center, which will contain both new variables and corrections to existing variables, user-designed modifications should be planned with flexibility in mind.

6. In subsetting, interrelationships among variables should be kept in mind.

7. The codebook should be kept up to date.

VI DOCUMENTATION

The package of documentation which accompanies the revised public-use tapes includes a codebook defining each variable and indicating how it is coded, as well as an alphabetic and a numeric index, which provide a convenient means of identifying and locating variables. Each of these components is described below, along with an explanation of how it is intended to be used.

A. Codebook

The codebook is the principal element of the documentation system, containing information that is intended to be complete and self-explanatory for each variable in the file. Nonetheless, in order to know precisely what a given variable means, it will frequently be necessary to use the codebook entry in conjunction with the relevant questionnaire and the Interviewers' Reference Manual.

The variables are arranged in a uniform pattern in each codebook. They are first grouped according to survey year. Within each survey year, variables picked up directly from the questionnaire appear first, arranged in item-number sequence. Next come the "recoded" variables (derived from one or more questionnaire items), arranged roughly in the order in which the topics appear in the questionnaire.

Reference number (format: XXXXX.XX) The reference number (R#) is a unique identification number assigned to each variable which determines its relative position within the codebook and which will remain constant through subsequent revisions of the files. The reference number is the identifier to be used when communicating about a variable with the Center.

Description of variable The description composed for each variable (85-character maximum) is displayed adjacent to the reference number. It is intended to summarize briefly the content of the variable, to serve as a heading for the codes which appear below it, and to represent the variable within the alphabetic and numeric indexes.

Several conventions have been used in developing the descriptions of variables:

(1) When the description of a variable includes the phrase "in 19XX," this means that the variable relates to the indicated calendar year. On the other hand, when a date follows a verbal description of a variable without being preceded by the preposition "in," the date simply identifies the year of the survey in which the relevant information was collected.

For the exact time period covered, the wording of the questionnaire item and the time at which the survey was conducted must be ascertained. For example:

NUMBER OF WEEKS_WORKED IN 1965 is the number of weeks worked in calendar year 1965 (ascertained in the 1966 survey).

NUMBER OF WEEKS_WORKED IN PAST YEAR, 1967 is the number of weeks worked in the 12-month period preceding the 1967 survey.

(2) If two ostensibly identical variables differ only in that they refer to different universes of respondents, the universe definitions are appended to the descriptions in parentheses. For example:

DATE RESPONDENT LAST WORKED FULL-TIME OR PART-TIME, 1969 (UNEMPLOYED_1969)

DATE_RESPONDENT LAST WORKED FULL-TIME OR PART-TIME, 1969 (OLF[1]_1969)

(3) Dichotomous variables are usually put in question form. For example:

DOES HEALTH LIMIT KIND OF WORK?, 1966

Coding information Appearing below the description of each variable is a section containing the set of legitimate codes[2] which the variable may assume and a text entry describing the codes. Code entries are discrete (categorical), such as

1 YES

0 NO

---

[1]Out of the labor force.

[2]The term "legitimate," for continuous variables, must be interpreted loosely. In many cases, artificial bounds are used to define a range which is broad enough to include all possible codes except NA. The actual range of codes appearing on the tape can be determined by examining the items labelled "MINIMUM" and "MAXIMUM" in the "COMMENTS" field of the codebook.

or continuous (quantitative), such as

01 THRU 52 ACTUAL NUMBER OF WEEKS

Several conventions have been followed in presenting the coding information.

(1) "NA" denotes the uniform non-response code (-999).[1]

(2) "DK" denotes the uniform "Don't know" code of -987.[1]

(3) Where coding information is especially complex and detailed, users are referred to Attachments to the codebook. Attachment 2 relates to occupation and industry variables and Attachment 3 relates to selected characteristics of other family members in the respondent's household.

Frequency distribution of variable In the case of discrete (categorical) variables, frequency counts are normally shown to the left of the code categories. In the case of continuous (quantitative) variables, a distribution of the variable is presented using a convenient class interval.[2] The format of these distributions varies. In some cases, for technical reasons, a distribution includes classes that lie outside the legal range of the variable; such classes, of course, show a frequency count of zero and should be ignored.

The following information concerning the code distribution is also presented:

(1) "# of NA's" indicates the number of occurrences of the uniform non-response code.

(2) "# of DK's" provides a count of the uniform DON'T KNOW code.

(3) "#NEGATIVE" is the number of negative codes exclusive of "NA" and "DK."

(4) "MININUM" indicates the smallest recorded value exclusive of "NA" and "DK."

(5) "MAXIMUM" indicates the largest recorded value.

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[1] See Section V.

[2] The frequency count for "split" variables, as well as the minimum and maximum values, reflect their "true" values. For a definition of "split variables," see Section V.

Variable number The variable number, which has been discussed in detail in Section V, identifies the tape location of the variable. (NOTE: Two "locations" appear for Split Variables--see Section V).

Questionnaire item The element entitled "QUESTION" contains a reference to the interview schedule for variables that are based directly on a questionnaire item. In some cases, reference is to a specific item number or a sub-section thereof. In other cases only the page number of the questionnaire is identified. The convention "CH XX" is used to identify questionnaire Check Items.

Universe information Among the steps in the initial processing of the NLS data by the Census Bureau were computer edits of the data. While these were generally carefully designed and executed by Census personnel, they were not exhaustive and, moreover, there were occasional errors which appear to have eliminated usable data from the tape. As a consequence, there are inconsistencies in the data. For example, there are responses to certain questions for individuals of whom they should not have been asked; conversely, there are cases in which questions that should have been asked a particular respondent appear not to have been asked.

In view of problems of this kind, it is frequently desirable to know what the relevant universe is for a given variable, i.e., which set(s) of respondents should have been asked the question(s) on which the variable is based. This can be ascertained by carefully tracing through the often complex skip patterns of the questionnaire. However, as a means of sparing the users of the revised data tapes the effort involved in this procedure, the "UNIVERSE INFORMATION" entry was designed at Ohio State from the skip pattern of the questionnaire. It lists the last decision point in every possible path to the item under consideration.

Not all items which appear on the questionnaire were coded into variables. Those which were not, of course, appear neither in the tape nor in the codebook. However, in the interest of continuity, the "UNIVERSE INFORMATION" entries which would have appeared for these items have been included in Attachment 1 of the codebook.

Derivations Whenever possible, the decision rules employed in the creation of constructed variables have been included in the codebook under the title "DERIVATIONS." This information is designed to enable the researcher to determine whether available constructs are appropriate to his needs. Unfortunately, there are many instances in which the original decision rules were unavailable, incomplete, and/or unclear. In most of these cases there has not been a careful re-assessment of the variable and the "derivations" can therefore not be accepted with complete confidence. However, there are several sets of variables that

are both especially important and likely to be widely used which the Center has reassessed. These are designated as "key" variables in the codebook, and, as of January 1974, include the annual total family income variables, total family asset variables, annual work experience variables (number of weeks worked, unemployed, and out of the labor force), and hourly rate of pay.

B. The KWIC Index

The KWIC ("KWIC" is the acronym for keyword-in-context) has been designed to assist users in identifying and locating variables relevant to their research interests. It is the output of a computer program which processes as inputs (1) a dictionary of predetermined keywords[1] and (2) a file containing a textual description of every variable available for a given cohort. The program generates as output an alphabetically arranged list of the keywords, and, under each, a list of all variables whose description contains the keyword. Most variables appear more than once within the index, since most variable descriptions contain more than one keyword.

The variables are sequenced by reference number, which permits the location of the variable in the codebook. In the descriptions of the variables, asterisks replace the keyword. For each variable there is also shown (1) "QUES #" which identifies the questionnaire items for those variables that come directly from the questionnaire; (2) "VBL #" which indicates tape location; and (3) an indicator for "split" variables: a plus sign (+) to the right of the "VBL #."

Needless to say, the descriptions of variables and the selection of keywords are to some extent arbitrary, having emerged out of common usage within the Center. To make the index more generally useful, a "dictionary" and a "thesaurus" of keywords are included in the KWIC Index. The "dictionary" lists all of the terms or phrases which are permitted to appear as keywords, cross-referenced with related keywords which users are advised to consult. The "thesaurus" lists concepts which are not used as keywords, cross-referenced with similar or equivalent words or phrases that do appear as keywords.

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[1] A "keyword" may in actuality be a word, a string of suitably connected words, or a phrase enclosed by parentheses. The underscore (_) is used as a connective between words.

C. Numeric Index

The Numeric Index is a complete list of all variables arranged in sequence of tape location. It includes the variable description and the other information contained in the KWIC Index. The fact that one can enter the Index with tape location and ascertain the information necessary to find the variable in the codebook or in the questionnaire makes it particularly useful to programmers.

VII COMPLETED RESEARCH BASED ON NIS DATA, 1966-1973

A. Men 45-59 Years of Age

*The Pre-Retirement Years: (Manpower Research Monograph no. 15)
Vol. I by Herbert S. Parnes, Belton M. Gleisher, Robert C. Miljus, and Ruth S. Spitz PB 180530**
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B. Women 30-44 Years of Age

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C. Young Men 14-24 Years of Age

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D. Young Women 14-24 Years of Age

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*Authors are current or former staff members of the Center for Human Resource Research, The Ohio State University.

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_____ (c) 7 track, BCD, 800 bpi, no labels
_____ (d) 7 track, BCD, 556 bpi, no labels
_____ (e) 9 track, IBM floating point binary, 800 bpi, standard labels
_____ (f) 9 track, IBM floating point binary, 1600 bpi, standard labels

Please indicate blocking preference*

_____ Unblocked

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(Users should assume that the logical record size will approximate 8000 to 10000 characters.)

A copy of the codebook on computer tape (useful only in configurations with 133-position printers which support a 64-character set) is available at no additional cost. Do you wish to receive this?

_____ Yes

_____ No

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*Purchasers who require a tape or record layout other than the standard options listed above should contact the Center for Human Resource Research before ordering. Special requests may require additional charges.